

1. A computer instruction comprises:
a context branch that causes an instruction stream to branch to another instruction stream having an address at a specified label based on whether or not a current context number matches a specified context number.
- 5 2. The context branch instruction of claim 1 wherein the instruction has the following format
$$\text{br}=\text{ctx}[\text{ctx}, \text{label\#}], \text{optional_token}$$
$$\text{br}!=\text{ctx}[\text{ctx}, \text{label\#}], \text{optional_token}$$
- 10 3. The context branch instruction of claim 2 wherein the label# is a symbolic label corresponding to the address of an instruction, ctx is the context number.
4. The context branch instruction of claim 3 wherein the context number has
15 valid values of 0, 1, 2, or 3.
5. The context branch instruction of claim 1 wherein the instruction has an optional_token.
- 20 6. The context branch instruction of claim 5 wherein the instruction has an optional token that defer causes a processor to execute the instruction following branch instruction before performing the branch operation.
- 25 7. A method of operating a processor comprises:
evaluating a context number of a executing context to determine whether the context number of the executing context matches a specified context number; and
branching to an specified instruction in accordance with evaluating the context number of the executing context.
- 30 8. The method of claim 7 wherein branching further comprises:
branching if the executing context number matches the specified context number.

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9. The method of claim 7 wherein the context number has valid values of 0, 1, 2, or 3.
10. A processor that can execute multiple contexts and that comprises:
5 a register stack;
a program counter for each executing context;
an arithmetic logic unit coupled to the register stack and a program control store that stores a context swap instruction that causes the processor to:
evaluate a context number of a executing context to determine whether the
10 context number of the executing context matches a specified context number; and
branch to a specified instruction in accordance with evaluating the context number of the executing context.
11. The processor of claim 10 wherein a branch occurs if the executing context
15 number matches the specified context number.
12. The processor of claim 10 wherein the context number has valid values of 0, 1, 2, or 3.
- 20 13. A computer program product residing on a computer readable medium for causing a processor that executes multiple contexts to perform a function comprises instructions causing the processor to:
evaluate a context number of a executing context to determine whether the
context number of the executing context matches a specified context number; and
25 branch to a specified instruction in accordance with evaluating the context number of the executing context.
14. The product of claim 13 wherein a branch occurs if the executing context
number matches the specified context number.
- 30 15. The product of claim 13 wherein the context number has valid values of 0, 1, 2, or 3.